

WHAT IS CLAIMED IS:

1. An isolated protein comprising a full-length polypeptide comprising at least 30 contiguous amino acids from the polypeptide of SEQ ID NO: 2, wherein the polypeptide has 3' to 5' exonuclease activity.
2. An isolated protein comprising an amino acid sequence having at least 80% sequence identity over the entire length of SEQ ID NO: 2, wherein the percent identity is determined by the GAP algorithm under default parameters, and wherein said sequence encodes a polypeptide having 3' to 5' exonuclease activity.
3. The isolated protein of claim 2, wherein the amino acid sequence has at least 85% sequence identity over the entire length of SEQ ID NO: 2.
4. The isolated protein of claim 2, wherein the amino acid sequence has at least 90% sequence identity over the entire length of SEQ ID NO: 2.
5. The isolated protein of claim 2, wherein the amino acid sequence has at least 95% sequence identity over the entire length of SEQ ID NO: 2.
6. An isolated protein comprising a polypeptide encoded by SEQ ID NO: 1, wherein the protein has 3' to 5' exonuclease activity.
7. The transgenic plant of claim 4, wherein said plant is selected from the group consisting of: maize, soybean, sunflower, sorghum, canola, wheat, alfalfa, cotton, rice, barley, and millet, peanut, and cocoa.
8. An isolated protein comprising the polypeptide of SEQ ID NO: 2.